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UNITED STATES.

[Reports to the Surgeon-General Public Health and Marine-Hospital Service.]

Yellow fever on steamship Hiram from Puerto Cortez at Gulf Quarantine, Miss.

Passed Assistant Surgeon Wille reports June 6 and 7 as follows:

I have the honor to report that the steamship *Hiram* of the United Fruit Company, with 29 fugitive passengers and 14 crew, from Puerto Cortez via Mobile arrived at this station at 5 p. m. of the 3d instant with 2 cases of sickness, upon which Dr. J. H. White, of this Service, and Doctor Goldthwaite, of the Mobile health board, made a provisional diagnosis of yellow fever.

Since the arrival of these patients the above diagnosis is confirmed. One of these cases was a child 9 years of age.

The child died yesterday, June 5, at 3 p. m., with marked toxæmic cerebral depression, black vomit, and moderate albuminuria.

The other patient is at present desperately ill with absolute suppression of urine. I have no hope of his recovery.

The type of the disease in these instances is very severe. The situation is well in hand, and I have no reason to suspect that new cases will develop, as the steamer was disinfected with sulphur prior to her departure from Puerto Cortez and upon her arrival here. No *Stegomyiæ* were found, neither were any mosquitoes observed by any of the passengers while en route.

JUNE 7, 1905.

Referring to my letter of the 6th instant, with reference to the Norwegian steamship *Hiram*, which arrived at this station June 3 from Puerto Cortez via Mobile with 2 cases of yellow fever, I have the honor to state that the second patient died of uremic coma last night, the 6th instant. There are no new developments on board the steamer.

Provisional sulphurization was done on the evening of the 3d instant, shortly after arrival, and final disinfection, with baggage well exposed and distributed, on the morning of the 4th instant.

Report from Gulfport, Miss.—Sanitary conditions in city and shipping good.

Acting Assistant Surgeon Sheely reports, June 6, as follows:

This port and city have been in a very healthy condition during the week just past, as regards both the shipping and the population.

INSPECTION SERVICE, MEXICAN BORDER.

Inspection at Eagle Pass, Tex.

Acting Assistant Surgeon Hume reports as follows:

	Week ended June 4, 1905.
Persons inspected on trains	174
Persons held	0

Inspection at El Paso, Tex.

Acting Assistant Surgeon Alexander reports as follows:

Week ended June 3, 1905.

Inspection Mexican Central passengers, 262; inspection Mexican Central immigrants, 66; inspection special Pullman passengers, 9; inspection of Arabs, 2; inspection of Japanese, 4; disinfection soiled linen imported for laundry, 517 pieces; inspection certificate cause of death of corpse transferred into the United States, 1; vaccination of children of immigrants, 5.

Inspection at Laredo, Tex.

Acting Assistant Surgeon Hamilton reports, June 6, as follows:

Week ended June 3, 1905.

Passenger trains from Mexico inspected, 15; persons on passenger trains from Mexico inspected, 704; immigrants on passenger trains from Mexico inspected, 32; immigrants vaccinated upon entry from Mexico, 12; 2 persons detained for reason of having passed within five days through Tierra Blanca, Mexico, where yellow fever prevails.

Ability of the larvæ and pupæ of the Stegomyiæ fasciata to withstand desiccation.

The following is received from Passed Assistant Surgeon T. D. Berry, at the port of New York, under date of May 21, 1905:

During the antimosquito campaign waged by the Public Health and Marine-Hospital Service in Laredo, Tex., in the summer of 1904, observations were made on the ability of mosquito larvæ and pupæ to withstand desiccation. It may be added that the Laredo climate was a particularly favorable one in which to study this phase of the mosquito subject.

The humidity during the summer was very low, the temperature high. Occasional rains, rather exceptional, formed puddles in the street which lasted for a few days. In only one of these were mosquito larvæ ever found.

I had read in Dr. L. O. Howard's book on Mosquitoes an incident in which the author noted that a small pool containing numerous larvæ became entirely dry; yet the next day after a rain numerous larvæ were seen swimming about in it.

This was also observed in a street puddle in the outskirts of Laredo. Larvæ were noted in this puddle on June 26. The next day it had almost dried, only a few gallons remaining. This quantity contained numerous pupæ. The following day the puddle became entirely dry, and during the next few days both dry and dusty.

On July 2 occurred a hard shower, and another on July 3, filling all the gutters and puddles in the city. Large larvæ were seen in the above-mentioned puddle on the afternoon of July 5.

On July 6 the puddle was again visited and found to be entirely devoid of water, and had apparently been dry for several hours. The mud was still moist, however, and lying in a depression in the puddle caused by a horse track were hundreds of apparently lifeless larvæ, and not dead without cause, for the thermometer had registered about 100° in the shade for several hours.

Some of the mud containing larvæ on its surface was scooped up and taken to the laboratory for examination. Another portion of mud containing larvæ was marked in situ to be seen the next day. The mud taken to office was placed in water and the larvæ revived at once. A small portion of mud containing 3 larvæ was taken up in a teaspoon, placed out in the sunlight, and left for over half an hour. The mud speedily dried into a hard baked clod, almost devoid of moisture, yet when this clod was disintegrated in water 2 of the larvæ began to exhibit signs of life and floated to the surface. One died in half an hour, but the other seemed no worse off from his experience several hours after.

Three minutes was the average time necessary to kill a *Stegomyia* mosquito exposed in a test tube to the same degree of sun heat at the same place. Another portion of mud containing larvæ was set aside in the office. The next morning ants had destroyed them, as well as those left in the puddle.

The larvæ placed in water, however, all thrived and hatched out into mosquitoes. These were identified by Passed Assistant Surgeon Goldberger and also by the consulting entomologist of the Service as the "*Tæniorhynchus signipennis* Coquillet."

One peculiarity of this mosquito larva, which was always the one found in water containing flowers, plants, lily bulbs, etc., was its ability to stay under water for long periods of time. One specimen was observed to stay under one hour by the watch.

The next rain occurred on July 25. Larvæ were taken from puddles on July 28; on July 29 had changed to pupæ and the next day to mosquitoes of same species as before.

At the beginning of my investigation I believed that the explanation of the incident witnessed by Doctor Howard, and also of the large larvæ noted by myself in the puddle so soon after a rain, was that the larvæ burrowed or sunk in the soft mud and thus lived from one shower to another. However, my observations did not bear out this theory. The larvæ showed no disposition to burrow, but merely settled down on the surface of the mud as the water evaporated. And while it was shown that larvæ can stand drying for hours, they could not have stood it for days and weeks; besides the baked mud was ground into powder by the wheels of vehicles.

The explanation, I suppose, of their presence in the puddle is that householders living on a little higher ground emptied their water barrels, containing old water and incidentally wigglers, in order to catch rain water; the wigglers would then float down until they lodged in this puddle.

Since the *Stegomyia fasciata* was never found in puddles in Laredo, artificial experiments were necessary to determine its ability to withstand desiccation.

Three larvæ and 3 pupæ of this species were placed on a double thickness of blotting paper at the bottom of a large glass jar, the blotting paper being used with the idea of absorbing every particle of moisture from the wigglers. At the end of 4 hours one pupa hatched out, and the remaining larvæ and pupæ were taken out and placed in water, where they became as active as ever.

The next day 12 pupæ were placed in this jar, and at the same time 10 pupæ and 2 larvæ were placed in a similar glass jar whose bottom had been covered by a 2-inch layer of fine, almost dry, river sand.

The pupæ were quite active in both jars, casting themselves about. Those in sand jar soon became plastered with the fine sand. At the end of two hours 1 mosquito had hatched out in sand jar and 3 from paper jar. At the end of five hours 3 more mosquitoes had hatched out in each jar. .Shortly afterwards small ants got in through double thickness of mosquito netting fastened over the top of the paper jar and attacked the remaining pupæ. However, no ants entered the sand jar, and by the next morning there were 9 mosquitoes in it. The last pupa was seen to cast off his sandy coat and emerge as a healthy mosquito at 10 a. m., just twenty-four hours after being placed in the jar. The 2 larvæ survived the twenty-four hour drying, and on being placed in water soon became as active as they should be. The hatched-out mosquitoes were apparently as lively specimens of the *Stegomyia fasciata* as those bred out under more favorable conditions.

The pupæ used in this experiment were of all ages, from the almost matured black one to the one which had only recently cast off his larval skin, and the color of which was a very light brown, yet every one in sand jar hatched out, showing that the younger ones lived almost their entire pupal stage outside of the water.

Before these experiments with the *Stegomyiæ* had been performed, the option had been given Laredo householders whose barrels contained wigglers, of emptying them or having them oiled. Orders were then issued to all inspectors to oil barrels containing pupæ and to leave two hours before emptying.

There is apparently no reason why pupæ emptied on the ground on cloudy days or late in the afternoon should not hatch out, if not found by ants; nor why they should not hatch out on sunshiny days if emptied on the shady side of the house. As far as I am aware it is the custom in most antimosquito campaigns to oil or empty water containers containing wigglers. It is well to know in epidemic times that the mere emptying of a vessel containing *Stegomyia* pupæ does not necessarily kill the pupæ, and that the neighborhood may be stocked with these highly dangerous insects.

While mentioning the abilities of mosquito larvæ to resist drying and heat, it might not be amiss to state their powers of resistance to cold.

Three *Stegomyia* larvæ were placed in a test tube containing about an inch of water. The test tube was then placed in a mixture of cracked ice and salt and the water in the tube frozen into a solid lump of ice. It was then left frozen for five minutes by the watch, taken out, and thawed out by the heat of the room. The larvæ were apparently dead, but slowly revived and by the next day were as lively as ever.

STATISTICAL REPORTS OF STATES AND CITIES OF THE UNITED STATES, YEARLY AND MONTHLY.

CONNECTICUT—*Bridgeport.*—Month of April, 1905. Estimated population, 82,128. Total number of deaths, 106, including diphtheria 2, enteric fever 3, and 17 from tuberculosis.

GEORGIA—*Columbus.*—Month of May, 1905. Estimated population, 20,764; white, 12,244; colored, 8,520. Total number of deaths, 40; white 23, colored 17, including enteric fever 1, and 5 from phthisis pulmonalis.